

REMARKS

Applicants appreciate the thorough examination of the present application as evidenced by the Final Office Action of May 22, 2008 (hereinafter "Final Action"). Applicants have amended Claim 1 as set out above. Applicants respectfully submit that pending claims are in condition for allowance, which is respectfully requested in due course.

The Section 102/103 Rejections

Claims 12-19 and 30 stand rejected under 35 U.S.C. § 102 as being anticipated by United States Patent No. 5,583,362 to Maegawa (hereinafter "Maegawa"). *See* Final Action, page 4. Claims 20-29 stand rejected under 35 U.S.C. § 103 as being unpatentable over Maegawa in further view of United States Patent No. 6,420,758 to Nakajima (hereinafter "Nakajima"). *See* Final Action, page 8. Since the rejections from the previous Office Action of November 15, 2007 have been maintained, in the interest of brevity, Applicants will not repeat the arguments made in Applicants' Request for Reconsideration of March 14, 2008 responsive thereto. However, Applicants incorporate the arguments made in their Request for Reconsideration of March 14, 2008 by reference as if set forth in its entirety herein. Accordingly, Applicants will limit their response to addressing the Amendments to Claim 12 and responding to the Response to Arguments section beginning on page 2 of the Final Action.

In particular, responsive to Applicants' arguments, the Final Action states:

Maegawa clearly depicts a transistor having multiple vertically stacked channels, where each channel is inherently required to have a source and drain. *See* Final Action, page 2. Each inherently required source and drain will be inherently located on opposite sides of and in direct contact with the corresponding vertically stacked channel. Since the channels are shown to be vertically stacked it naturally follows that the required sources and drains will too be vertically stacked.

Final Action, page 2 (emphasis in original). In other words, the Final Action states that Maegawa discusses vertically stacked sources and drains each contacting with a corresponding vertically stacked channel. Thus, Maegawa discloses a plurality of junctions vertically stacked.

In stark contrast, amended Claim 12 recites a vertical junction. In particular, amended Claim 12 recites "the pair of vertical source and drain regions are vertically formed to cover the sides of the active region in other patterns adjacent to sides of the spaced apart patterns so

that the pair of vertical source and drain regions contact the sides of the at least two spaced apart horizontal channel regions.” Nothing in Maegawa discloses or suggests a pair of vertical source and drain regions that contact the vertically stacked channels as recited in amended Claim 1.

Furthermore, responsive to Applicants’ arguments that Maegawa does not disclose or suggest the recitations of independent Claim 23, the Final Action states:

Regarding further arguments that Maegawa does not disclose or suggest the claimed limitations of Claim 23, because “the Office Action arbitrarily combined the embodiments in Maegawa to teach the recitations of claim 23.” With this statement it is acknowledged by the Office that the Applicants agree Maegawa does disclose the recited claim limitations.

See Final Action, page 4. Applicants do not agree with the statement in the Final Action. Applicants respectfully submit that this statement in the Final Action completely ignores the first portion of Applicants’ argument with respect to Claim 23. The first portion of Applicants argument is reproduced below for the Examiner’s convenience.

Claims 20-29 stand rejected under 35 U.S.C. § 103 as being unpatentable over Maegawa in further view of United States Patent No. 6,420,758 to Nakajima (hereinafter "Nakajima"). See Office Action, page 8. Applicants respectfully submit that many of the recitations of these claims are neither disclosed nor suggested by the cited references. For example, independent Claim 23 recites, in part:

A method of fabricating a transistor comprising:
forming a trench region on an integrated circuit substrate to define an active region;
forming a stacked structure including at least one set of first epitaxial patterns and second epitaxial patterns on the active region;...
growing a third epitaxial layer on sidewalls of at least one set of first and second epitaxial patterns;...
selectively etching the first epitaxial patterns of the set of at least one first and second epitaxial patterns to form a horizontal channel region having a plurality of spaced apart channel layers...

Applicants respectfully submit that at least portions of Claim 23 set out above are neither disclosed nor suggested by the cited combination for at least the reasons discussed herein.

In particular, the Office Action points to Maegawa as teaching the "selectively etching" step of Claim 23. See Office Action, page 12. The cited portion of Maegawa discusses a first conductive pattern (channel pattern or gate pattern) having a space and second conductive pattern covering the first conductive pattern after forming a gate insulating layer. The channel patterns are formed by repeating the formation of the first and second conductive patterns. The process discussed in

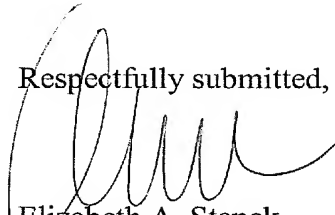
Maegawa may include a complicated alignment process due to the repeated formation of multiple layers. In stark contrast, Claim 23 recites "selectively etching the first epitaxial patterns of the set of at least one first and second epitaxial patterns to form a horizontal channel region having a plurality of spaced apart channel layers." Nothing in Maegawa discloses or suggests selectively etching the first epitaxial layer to form the channel region as recited in independent Claim 23. Furthermore, nothing in Maegawa discloses or suggests forming a third epitaxial layer on sidewalls of the first and second epitaxial layers as recited in Claim 23. Accordingly, Applicants respectfully submit that independent Claim 23 and the claims that depend therefrom are patentable over the cited combination for at least the reasons discussed herein.

See Applicants' Request for Reconsideration of March 14, 2008, pages 9-10. Accordingly, Applicants clearly did not acknowledge that Maegawa discloses the recitations of Claim 23 as suggested in the Final Action.

CONCLUSION

Applicants respectfully submit that pending claims are in condition for allowance, which is respectfully requested in due course. Favorable reconsideration of this application is respectfully requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (919) 854-1400.

Respectfully submitted,

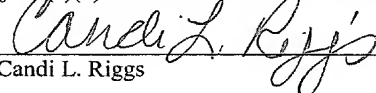


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CERTIFICATION OF TRANSMISSION

I hereby certify that this correspondence is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4) to the U.S. Patent and Trademark Office on July 22, 2008.


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